

Patent Claims

1. Process for improving energy supply when heating and melting a scrap bulk, wherein preheated oxidizing gas with addition of fossil fuels melts a channel into the scrap bulk, and further energy supply occurs through this channel and wherein hot blast is supplied to the scrap bulk from the top.
2. The process as claimed in claim 1, wherein hot blast supply occurs centrally from the top.
3. The process as claimed in claim 1 and 2, wherein the hot blast is divided into several separate jets.
4. The process as claimed in claim 1 – 3, wherein the hot blast is distributed to a central jet with 35 to 65 % of the total amount and several jets outside the central jet for the rest.
5. The process as claimed in claim 1 – 4, wherein hot blast is supplied via a vertically adjustable lance.
6. The process as claimed in claim 1 – 5, wherein the hot blast lance rotates around the vertical axis.
7. The process as claimed in claim 1 – 6, wherein a hot heel remains in the furnace.
8. The process as claimed in claim 1 – 7, wherein the hot heel in the furnace makes up 10 to 30 % of the melt.
9. The process as claimed in claim 1 – 8, wherein oxygen is injected via bottom blowing tuyeres.
10. The process as claimed in claim 1 – 9, wherein the bottom blowing tuyeres are installed in an indentation of the furnace bottom.

11. The process as claimed in claim 1 – 10, wherein a high hot blast velocity (500 to 900 m/sec) is applied during a first phase and a reduced hot blast velocity (approx. 300 to 500 m/sec) during a second phase.
12. The process as claimed in claim 1 – 11, wherein the hot blast jet is enriched with oxygen to 30 to 50 % in phase 1, whereas there is no or hardly any oxygen enrichment in phase 2.
13. The process as claimed in claim 1 – 12, wherein the distance of the hot blast jet to the surface of the scrap is 0.2 to 0.5 m in phase 1 and is adjusted to a distance to the iron bath of at least 3 m during phase 2.